

Why Is The Sea Blue?

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All color in the world comes from light. Without light, we would see no color in the greenest grass, a peacock’s feather, a bunch of flowers, or a brilliant rainbow. Three factors determine the colors we see: the light itself, the material it falls on, and the ability of the human eye to distinguish colors.

A beam of light appears to us to have no color. Shine it through a prism, and it breaks down into a spread of colors resembling those in a rainbow. Indeed, that is why rainbows appear in the sky: a shower of raindrops acts to open up the full spectrum of light into all its different and wonderful wavelengths.

We see a ripe tomato as being bright red because its skin reflects the red light in the spectrum, and absorbs all other colors. Grass isn’t in itself colored green, nor are other objects in our world a myriad variety of colors. Their surface texture reflects light of a particular wavelength. That is why some objects appear to change color if they are tilted towards or away from the light. A shiny fabric, for example, may look green from one angle and blue from another.

If the light source is changed, an object’s color may alter. A woman buying some curtains is wise to take them into daylight: fluorescent store lights have more blue light; sunshine increases the amount of red in a fabric.

Travelers know that the seas appear to be a dark green in some places and turquoise blue in others. The Mediterranean is renowned for its dark-blue color. The sky and its reflection in water account partly for the sea’s color. On gray and stormy days of heavy cloud, the water looks laden.

When light strikes water, much is reflected, possibly causing glare. Of the light that penetrates the surface, some is absorbed; the rest is broken up and scattered back towards the surface that gives the sea its color.

Different wavelengths of light penetrate to different depths. If the water is clear, the red and yellow wavelengths of light are soon absorbed, leaving only blue-green light to be scattered back. That is why clear seas appear bluer.

The time of year also affects the ocean’s color. If the water is rich in nutrients, as it may become through chemicals carried down by rivers, it may encourage spring and summer weed growths. Fine particles suspended in water will alter its color. Blooms of algae, for example, can suddenly turn seas red.

A combination of red-brown seaweed and blue sky sometimes gives seas such as the Mediterranean a magenta or purple hue. Runoff from coastal rivers, bringing a range of different vegetable and mineral particles, may cause the sea to look red-brown on one day and almost yellow on another. And close to shore any light-colored sand will make the water look blue-green rather than blue.

If you don’t agree with a companion that the sea is a brilliant blue, the cause undoubtedly lies in your eyes. Our perception of color varies according to how light-sensitive cells are distributed in the retina. What looks like dark blue to one person may be gray-blue to another.